STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION

MISSOURI STATE OPERATING PERMIT

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No.	MO-0097675
Owner:	Associated Electric Cooperative, Inc. (AECI)
Address:	PO Box 754, Springfield, MO 65801-0754
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	AECI, Thomas Hill Energy Center - Power Division
Facility Address:	Route 1, Box 87, Clifton Hill, MO 65244-9801
Legal Description:	See Page 2
Receiving Stream:	See Page 2
First Classified Stream and ID:	See Page 2
USGS Basin & Sub-watershed No.:	See Page 2

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

FACILITY DESCRIPTION

See Pages 2 & 3

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law.

December 24, 2003
Effective Date

Stephen M. Mahfood, Director, Department of Natural Resources
Executive Secretary, Clean Water Commission

December 23, 2008
Expiration Date

Jim Hull, Director of Staff, Clean Water Commission

LEGAL DESCRIPTION & RECEIVING STREAM

Outfall #001
NW ¼, NW ¼, Sec. 30, T55N, R15W, Randolph County
Unnamed Tributary to Middle Fork Chariton River (U)
Middle Fork Chariton River (P)(00691)
(10280203-020001)

Outfalls #003, #004, #005, #007, #008, #013, #014 & #016
S ½, NW ¼, Sec. 19, T55N, R15W, Randolph County
Thomas Hill Lake (U)
Thomas Hill lake (L2) (07173)
(10280203-010002)

Outfall #006 - This Outfall has been eliminated
SE ¼, NE ¼, Sec. 19, T55N, R15W, Randolph County
Thomas Hill Lake (U)
Thomas Hill lake (L2) (07173)
(10280203-010002)

Outfalls #009, #010, #011 & #012, #017 & #018
NW ¼, SW ¼, Sec. 19, T55N, R15W, Randolph County
Tributary to Thomas Hill Lake (U)
Thomas Hill lake (L2) (07173)
(10280203-010002)

FACILITY DESCRIPTION

Outfall #001 – Power Plant - SIC #4911
Ash pond/stormwater runoff/sludge is retained in lagoon.
Design flow is 29 MGD.
Actual flow is 6.68 MGD.

Outfall #002
Eliminated, deminimus discharge

Outfall #003 – Power Plant - SIC #4911
Cooling water/stormwater runoff.
Design flow is 348 MGD.
Actual flow is 245.2 MGD.

Outfall #004 – Power Plant - SIC #4911
Cooling water.
Design flow is 648 MGD.
Actual flow is 532.8 MGD.

Outfall #005 – Power Plant - SIC #4911
Process water/pH neutralization/single cell lagoon.
Design flow is 2.33 MGD.
Actual flow is 0.084 MGD.

Outfall #006 – Power Plant - SIC #4911
Eliminated, goes to Outfall #001

Outfall #007 – Power Plant - SIC #4911
Material storage/stormwater runoff.
Flow is dependent upon precipitation.

FACILITY DESCRIPTION (continued)

Outfall #008 – Power Plant - SIC #4911
Stormwater runoff/settling basin/sludge is retained in lagoon.
Design flow is 0.384 MGD.
Flow is partially dependent upon precipitation.

Outfall #009 – Power Plant - SIC #4911
Stormwater runoff.
Flow is dependent upon precipitation.

Outfall #010 – Power Plant - SIC #4911
Intake strainer backwash.
Actual flow is 0.034 MGD.

Outfall #011 – Power Plant - SIC #4911
Water treatment/oil-water separator/single cell lagoon/stormwater runoff/water plant sludge drained to scrubber/blowdown from small laboratory cooling tower.
Actual flow is 0.530 MGD.

Outfall #012 – Power Plant - SIC #4911
Water storage tanks/stormwater discharge.
Flow is dependent upon precipitation.

Outfall #013 – Power Plant - SIC #4911
Activated sludge/single cell lagoon/package treatment plant/sludge is hauled off-site by contract hauler.
Actual flow is 0.005 MGD.
Discharges to Outfall #005.

Outfall #014 – Power Plant - SIC #4911
Contact cooling water/boiler blowdown.
Design flow is 0.560 MGD.
Actual flow is 0.131 MGD.

Outfall #015
Eliminated, not part of this permit

Outfall #016 – Power Plant - SIC #4911
Stormwater runoff/settling basin/lift station.
Flow is dependent upon precipitation/stormwater runoff.

Outfall #017 & #018 – Power Plant - SIC #4911
Stormwater runoff.
Flow is dependent upon precipitation.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001						
Flow	MGD	*		*	once/week	(Note 1)
Total Suspended Solids (Intake)	mg/L	*		*	once/week	24 hr. composite
Total Suspended Solids (Note 2)	mg/L	100		30	once/week	24 hr. composite
pH – Units	SU	**		**	once/week	grab
Oil & Grease	mg/L	20		15	once/week	grab
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE February 28, 2004.						
Whole Effluent Toxicity (WET) Test	% Survival	See Special Condition #9			once/year	24 hr. composite
MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE October 28, 2004.						
Outfalls #003 & #004						
Flow	MGD	*		*	once/week	(Note 1)
Total Residual Chlorine (Note 3)	mg/L	0.2			(Note 4)	grab
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE February 28, 2004.						
Whole Effluent Toxicity (WET) Test	% Survival	See Special Condition #9			once/year	24 hr. composite
MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE October 28, 2004.						
Outfall #005						
Flow	MGD	*		*	once/month	24 hr. estimate
Total Suspended Solids	mg/L	100		30	once/month	grab
Oil & Grease	mg/L	20		15	once/month	grab
pH – Units	SU	***		***	once/month	grab
Outfall #010						
Flow	MGD	*		*	once/month	24 hr. estimate
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE February 28, 2004. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Part I STANDARD CONDITIONS DATED October 1, 1980, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfalls #011 & #014						
Flow	MGD	*		*	once/month	24 hr. estimate
Total Suspended Solids	mg/L	100		30	once/month	grab
Oil & Grease	mg/L	20		15	once/month	grab
pH – Units	SU	**		**	once/month	grab
Outfall #013						
Flow	MGD	*		*	once/month	24 hr. total
Biochemical Oxygen Demand$_5$	mg/L		45	30	once/month	24 hr. composite
Total Suspended Solids	mg/L		45	30	once/month	24 hr. composite
pH – Units	SU	**		**	once/month	grab
Outfall #016						
Flow	MGD	*		*	once/discharge event	24 hr. estimate
Total Suspended Solids (Note 5)	mg/L	*		*	once/discharge event	grab
pH - Units	SU	**		**	once/discharge event	grab

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE February 28, 2004.

Outfalls #007 & #008						
Flow	MGD	*		*	once/quarter****	24 hr. estimate
Settleable Solids	mL/L/hr	1.5			once/quarter****	grab
Oil & Grease	mg/L	20		15	once/quarter****	grab
pH – Units	SU	**		**	once/quarter****	grab
Outfall #009						
Flow	MGD	*		*	once/quarter****	24 hr. estimate
Settleable Solids	mL/L/hr	1.5			once/quarter****	grab
Oil & Grease	mg/L	*		*	once/quarter****	grab
pH - Units	SU	**		**	once/quarter****	grab

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE April 28, 2004. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Part I STANDARD CONDITIONS DATED October 1, 1980, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
OutfallS #012						
Flow	MGD	*		*	once/year if discharge occurs	24 hr. estimate
Total Suspended Solids	mg/L	100		50	once/year if discharge occurs	grab
Oil & Grease	mg/L	20		15	once/year if discharge occurs	grab
pH – Units	SU	**		**	once/year if discharge occurs	grab
MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE October 28, 2004.						
Outfalls #017						
Flow	MGD	*		*	once/quarter****	24 hr. estimate
Settleable Solids	mL/L/hr	1.5			once/quarter****	grab
pH – Units	SU	**		**	once/quarter****	grab
Outfall #018						
Flow	MGD	*		*	once/quarter****	24 hr. estimate
Settleable Solids	mL/L/hr	1.5			once/quarter****	grab
pH - Units	SU	**		**	once/quarter****	grab
MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE April 28, 2004. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Part I STANDARD CONDITIONS DATED October 1, 1980, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

MO 780-0010 (8/91)

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

* Monitoring requirement only.
** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.0-9.0 pH units.
*** pH is measured in pH units and is not to be averaged. The pH is to be maintained at or above 6.0 pH units.
**** Sample once per quarter in the months of January, April, July & October.

Note 1 – Computed from pump curve and pump running time or 24 hour estimate.

Note 2 – Total Suspended Solids discharge is based on the net increase of Total Suspended Solids in effluent above the concentration measured in the intake water.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

Note 3 - This permit contains a Total Residual Chlorine (TRC) limit.

a. If the TRC limit in this permit is 0.01 mg/L or 0.2 mg/L, you must use an analytical method that has a quantification limit of no greater than 0.05 mg/L TRC. For reporting purposes on the discharge monitoring report (DMR), all analytical values below 0.05 mg/L shall be reported as "<quantlim." All analytical values at or above the quantification limit of 0.05 mg/L shall be reported as the measured value. The permittee shall report the quantification limit in the remarks section of the DMR.

   The average monthly effluent values for TRC will be determined by assuming that analytical results below the quantification limit are equivalent to 0 mg/L when calculating the monthly average.

   The daily effluent value will be considered equal to 0 mg/L if it is below the quantification limit.

b. If the TRC limit in this permit is 1.0 mg/L; you must use an analytical method with a quantification limit between 0.2 and 0.5 mg/L. All analytical values below the quantification limit shall be reported as "<quantlim." All analytical values at or above the quantification limit shall be reported as the measured value.

   The average monthly effluent values for TRC will be determined by assuming that analytical results below the quantification limit are equivalent to 0 mg/L when calculating the monthly average.

   The daily effluent value will be considered equal to 0 mg/L if it is below the quantification limit.

c. Disinfection is required year-round unless the permit specifically states that "Final limitations and monitoring requirements for Fecal Coliform are applicable only during the recreational season from April 1 through October 31." If your permit does not require disinfection during the non-recreational months, do not chlorinate in those months.

d. Do not chemically dechlorinate if it is not required in your permit.

e. If no chlorine was used in a given sampling period, an actual analysis is not necessary. Simply report as "0 mg/L" TRC.

Note 4 – Monitoring for Total Residual Chlorine will be conducted daily during chlorine use.

Note 5 – Effluent limitation are not applicable to storm frequency and duration in excess of the 10-year, 24-hour rainfall events as defined by the National Weather Service in Technical Paper No. 40, "Rainfall Frequency Atlas of the United States", or most current rainfall atlas published by the National weather Service, or equivalent probability information.

C. SPECIAL CONDITIONS

1. All outfalls must be clearly marked in the field.

2. Permittee will cease discharge by connection to areawide wastewater treatment system within 90 days of notice of its availability.

3. Report as no-discharge when a discharge does not occur during the report period.

C. SPECIAL CONDITIONS (continued)

4. This permit may be reopened and modified, or alternatively revoked and reissued, to:

(a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
  (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
  (2) controls any pollutant not limited in the permit.
(b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.
(c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.

The permit as modified or reissued under this paragraph shall also contain any other requirements of the Clean Water Act then applicable.

5. Changes in Discharges of Toxic Substances

The permittee shall notify the Director as soon as it knows or has reason to believe:
(a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"
  (1) One hundred micrograms per liter (100 µg/L);
  (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
  (3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
  (4) The level established in Part A of the permit by the Director.
(b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.

6. Use or Disposal of Ash from Power Plants
(a) Disposal of ash is not authorized by this permit.
(b) This permit does not pertain to permits for disposal of ash or exemptions for beneficial uses of ash under the Missouri Solid Waste Management Law and regulations.
(c) This permit does not authorize off-site storage, use or disposal of ash in regard to water pollution control permits required under 10 CSR 20-6.015 and 10 CSR 20-6.200.
(d) An annual report shall be submitted by January 28 of each year for the previous calendar year period. The report shall include the quantity of ash generated; the cumulative quantity of ash stored on-site at the end of the year, including ash ponds; the quantity of ash sold or given away to each customer, and the intended use of the ash.

C. SPECIAL CONDITIONS (continued)

7. Sludge and Biosolids Use For Domestic Wastewater Treatment Facilities
   (a) Permittee shall comply with the pollutant limitations, monitoring, reporting, and other requirements in accordance with the attached permit Standard Conditions.
   (b) If sludge is not removed by a contract hauler, permittee is authorized to land apply biosolids. Permit Standard Conditions, Part III shall apply to the land application of biosolids. Permittee shall notify the department at least 180 days prior to the planned removal of biosolids from the lagoon. The department may require submittal of a biosolids management plan for department review and approval as determined appropriate on a case-by-case basis.

8. General Criteria. The following water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
   (a) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
   (b) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
   (c) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
   (d) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
   (e) There shall be no significant human health hazard from incidental contact with the water;
   (f) There shall be no acute toxicity to livestock or wildlife watering;
   (g) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
   (h) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.

9. Whole Effluent Toxicity (WET) tests will be conducted as follows:

SUMMARY OF WET TESTING FOR THIS PERMIT				
OUTFALL	A.E.C. %	FREQUENCY	SAMPLE TYPE	MONTH
#001	100%	Annually	24 hr. composite	July
#003 & #004	100%	Annually †	24 hr. composite	July

†At the AECI, Thomas Hill Energy Center, Whole Effluent Toxicity (WET) tests will be required for Outfalls #003 & #004 only if biocides are used. The WET test will only be required in the first year if the initial test passes. If the WET test does not pass in the first year, the test must be run annually for the duration of the permit or until biocide used is discontinued.

An initial WET test will be required for Outfall #001 (Ash Pond). The WET test will only be required in the first year if it passes at all effluent concentrations. If the WET test fails at any concentration in the first year, the test must be run annually for the duration of the permit.

C. SPECIAL CONDITIONS (continued)

9. Whole Effluent Toxicity (WET)(continued)

(a) Test Schedule and Follow-Up Requirements

(1) Perform a single-dilution test in the months and at the frequency specified above. If the effluent passes the test, do not repeat the test until the next test period.
Submit test results along with complete copies of the test reports as received from the laboratory within 30 calendar days of availability to the WPCP, Planning Section, P.O. Box 176, Jefferson City, MO 65102.

(2) If the effluent fails the test, a multiple dilution test shall be performed within 30 calendar days , and biweekly thereafter, until one of the following conditions are met:

(a) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.
(b) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.

(3) The permittee shall submit a summary of all test results for the test series along with complete copies of the test reports as received from the laboratory to the WPCP, Planning Section, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the third failed test.

(4) Additionally, the following shall apply upon failure of the third test: A toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE) is automatically triggered. The permitee shall contact WPCP, Planning Section to ascertain as to whether a TIE or TRE is appropriate . The permittee shall submit a plan for conducting a TIE or TRE to the Planning Section of the WPCP within 60 calendar days of the date of DNR's direction to perform either a TIE or TRE. This plan must be approved by DNR before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.

(5) Upon DNR's approval, the TIE/TRE schedule may be modified if toxicity is intermittent during the TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.

(6) If a previously completed TIE has clearly identified the cause of toxicity, additional TIEs will not be required as long as effluent characteristics remain essentially unchanged and the permittee is proceeding according to a DNR approved schedule to complete a TRE and reduce toxicity. Regularly scheduled WET testing as required in the permit, without the follow-up requirements, will be required during this period.

(7) All failing test results shall be reported to WPCP, Planning Section, P.O. Box 176, Jefferson City, MO 65102within 14 calendar days of the availability of the results.

(8) When WET test sampling is required to run over one DMR period, each DMR report shall contain information generated during the reporting period.

(9) Submit a concise summary of all test results with the annual report.

C. SPECIAL CONDITIONS (continued)

9. Whole Effluent Toxicity (WET)(continued)

(b) PASS/FAIL procedure and effluent limitations:

(1) To pass a single-dilution test, mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level; p = 0.05) than that observed in the upstream receiving-water control sample. The appropriate statistical tests of significance will be those outlined in the most current USEPA acute toxicity manual or those specified by the MDNR.

(2) To pass a multiple-dilution test:

(a) the computed percent effluent at the edge of the zone of initial dilution, Acceptable Effluent Concentration (AEC), must be less than three-tenths (0.3) of the LC_{50} concentration for the most sensitive of the test organisms; or,
(b) all dilutions equal to or greater than the AEC must be nontoxic. Failure of one multiple-dilution test is an effluent limit violation.

(c) Test Conditions

(1) Test Type: Acute Static non-renewal

(2) Test species: Ceriodaphnia dubia and Pimephales promelas (fathead minnow). Organisms used in WET testing shall come from cultures reared for the purpose of conducting toxicity tests and cultured in a manner consistent with the most current USEPA guidelines. All test animals shall be cultured as described in the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms.

(3) Test period: 48 hours at the "Acceptable Effluent Concentration" (AEC) specified above.

(4) When dilutions are required, upstream receiving stream water shall be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 10%, "reconstituted" water will be used as dilution water. Procedures for generating reconstituted water will be supplied by the MDNR upon request.

(5) Single-dilution tests will be run with:
(a) Effluent at the AEC concentration;
(b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
(c) reconstituted water.

(6) Multiple-dilution tests will be run with:
(a) 100%, 50%, 25%, 12.5%, and 6.25% effluent, unless the AEC is less than 25% effluent, in which case dilutions will be 4 times the AEC, two times the AEC, AEC, 1/2 AEC and 1/4 AEC;
(b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
(c) reconstituted water.

(7) If reconstituted-water control mortality for a test species exceeds 10%, the entire test will be rerun.

SUMMARY OF TEST METHODOLOGY FOR WHOLE-EFFLUENT TOXICITY TESTS

Whole-effluent-toxicity test required in NPDES permits shall use the following test conditions when performing single or multiple dilution methods. Any future changes in methodology will be supplied to the permittee by the Missouri Department of Natural Resources (MDNR). Unless more stringent methods are specified by the DNR,the procedures shall be consistent with the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms,

Test conditions for Ceriodaphnia dubia:

Test duration:	48 h
Temperature:	25 ± 1°C Temperatures shall not deviate by more than 3°C during the test.
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light, 8 h dark
Size of test vessel:	30 mL (minimum)
Volume of test solution:	15 mL (minimum)
Age of test organisms:	<24 h old
No. of animals/test vessel:	5
No. of replicates/concentration:	4
No. of organisms/concentration:	20 (minimum)
Feeding regime:	None (feed prior to test)
Aeration:	None
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Pass/Fail (Statistically significant Mortality when compared to upstream receiving water control or synthetic control if upstream water was not available at $p \leq 0.05$)
Test acceptability criterion:	90% or greater survival in controls

Test conditions for (Pimephales promelas):

Test duration:	48 h
Temperature:	25 ± 1°C Temperatures shall not deviate by more than 3°C during the test.
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light/ 8 h dark
Size of test vessel:	250 mL (minimum)
Volume of test solution:	200 mL (minimum)
Age of test organisms:	1-14 days (all same age)
No. of animals/test vessel:	10
No. of replicates/concentration:	4 (minimum) single dilution method 2 (minimum) multiple dilution method
No. of organisms/concentration:	40 (minimum) single dilution method 20 (minimum) multiple dilution method
Feeding regime:	None (feed prior to test)
Aeration:	None, unless DO concentration falls below 4.0 mg/L; rate should not exceed 100 bubbles/min.
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Pass/Fail (Statistically significant Mortality when compared to upstream receiving water control or synthetic control if upstream water was not available at $p \leq 0.05$)
Test Acceptability criterion:	90% or greater survival in controls

C. OTHER REQUIREMENTS

1. There shall be no discharge of polychlorinated biphenyl compounds.
2. Discharge of wastewater from this facility must not alone or in combination with other sources cause the receiving stream to violate the water temperatures and temperature differentials specified in Missouri Water Quality Standards.
3. Any pesticide discharge from any point source shall comply with the requirements of the Federal Insecticide, Fungicide and Rodenticide Act as amended (7 U.S.C. 136 et seq.) and the use of such pesticides shall be in a manner consistent with its label.
4. Neither free available chlorine nor total residual chlorine may be discharged from any unit for more than two hours in any one day and not more than one unit in any plant may discharge free available or total residual chlorine at any one time.
5. “Monitoring only” parameters listed in Part A must be reported on the Discharge Monitoring Reports.
6. This permit authorizes the continued use of existing or new storm sewers to convey uncontaminated storm runoff. Such uncontaminated Outfalls do not require monitoring or limitations.
7. For the next permit renewal, a study must be completed on methods and strategies to control settleable solids and total suspended solids discharging from Outfall #0016. For this permit period the company needs to continue best management practices at Outfall #016 to the extent possible. The company needs to be aware that the next permit may have solids limits for Outfall #016.